

ABSTRACT

~~The invention uncovers a~~ A complex polarizer system ("cross-polarizer") comprising ~~including~~ an arrangement of at least three polarizing beam splitting layers P1,P2,P3 ~~with their polarizing layer vectors V1,V2,V3. P1 and P2 are arranged such that a~~ ~~[[sub-]]beam transmitting~~ transmitted by P1 ~~along an optical axis A1 is reflected~~ ~~[[at]] by~~ ~~P2 without further polarization rotating components~~ ~~because V1 and A1 span a plane which is normal to the plane spanned by V2 and A1; P3 is arranged such that a~~ ~~[[sub-]]beam being reflected by P1 from A1 into the optical axis A2 transmits~~ transmits ~~P3 because V1 and A2 span a plane which is normal to the plane spanned by V3 and A2 without further polarization rotating components.~~ The congeneric processing of the two sub-beams of a beam split at P1 (both sub-beams go through a transmission and a reflection) eliminates the intrinsic asymmetries of simple polarizers with respect to purity and folding, ~~and is a consequence of the described perpendicular crossing of planes~~ ~~("cross-polarizer")~~. Coupling of cross-polarizers results in efficient arrangements of systems which operate with complementarily polarized radiation, e.g. 2-channel image display systems with ~~polarization-rotating~~ reflective spatial light modulators (e.g. Liquid Crystal on Silicon displays).